Intel Hardware Directions - Roadmaps And Initiatives

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Major Force Driving The PC Industry:

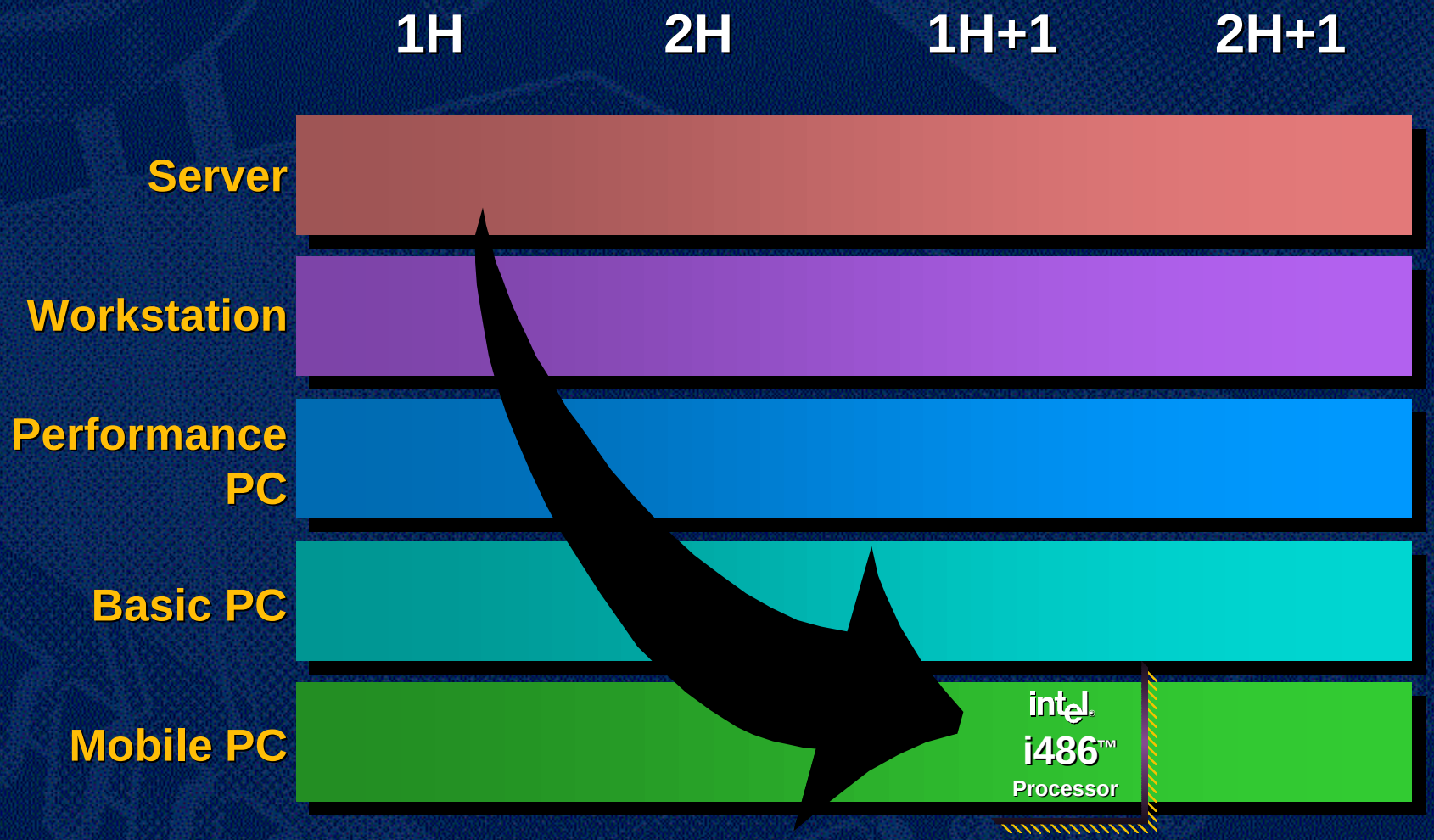
Market segmentation

PC Market Evolution

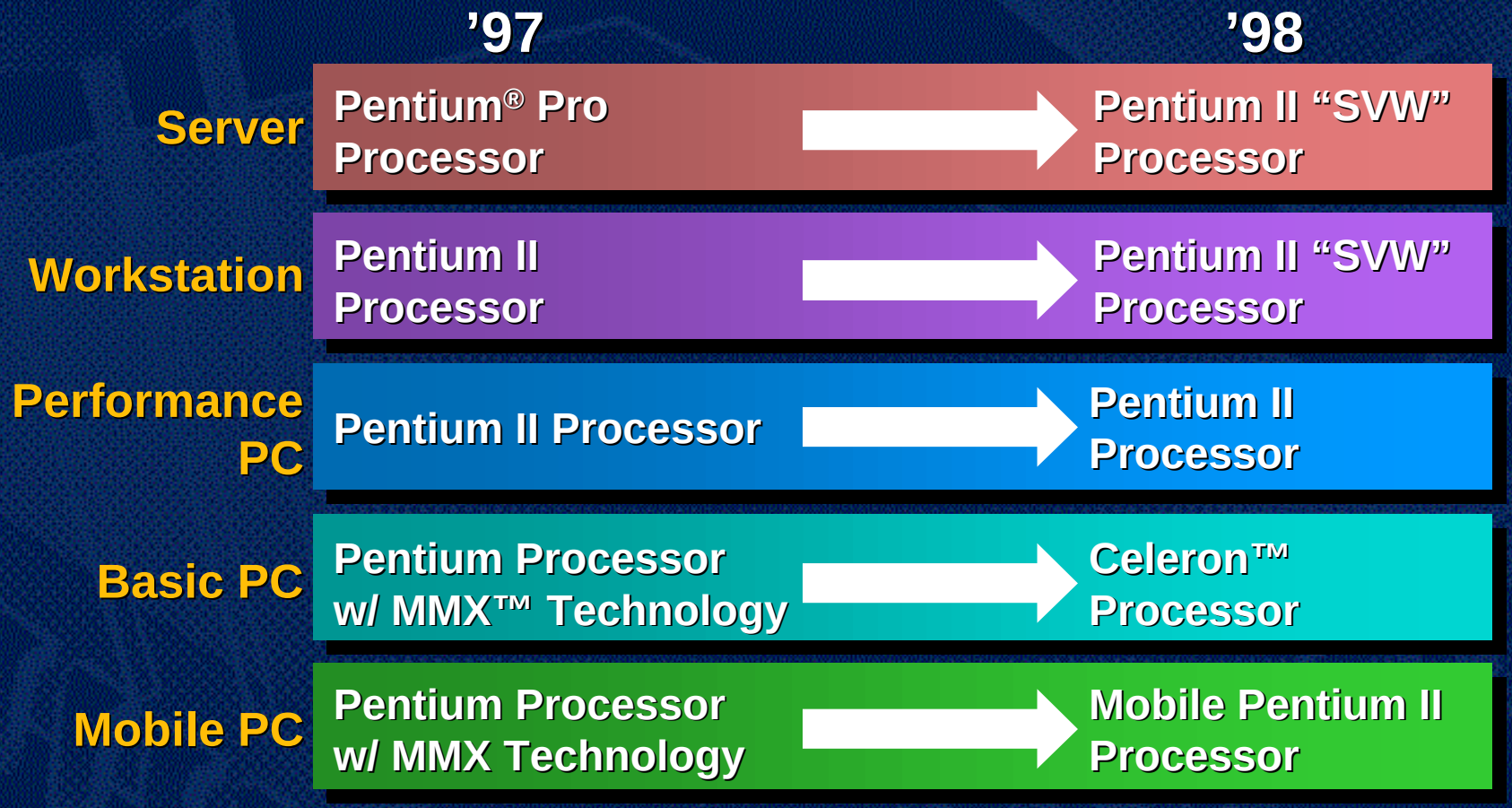
Moving into new segments of computing

Old Product Roadmap

Old Product Roadmap



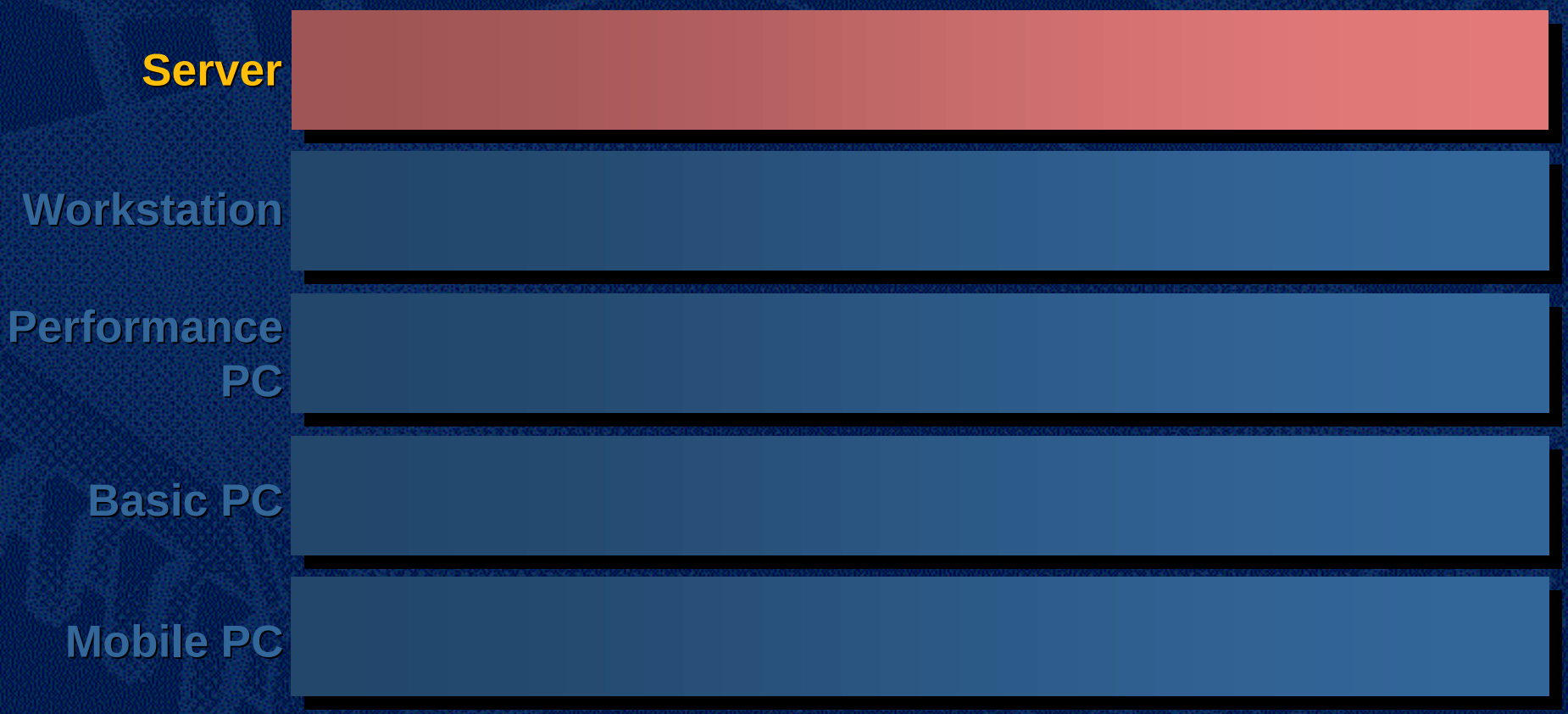
New Product Roadmap Direction



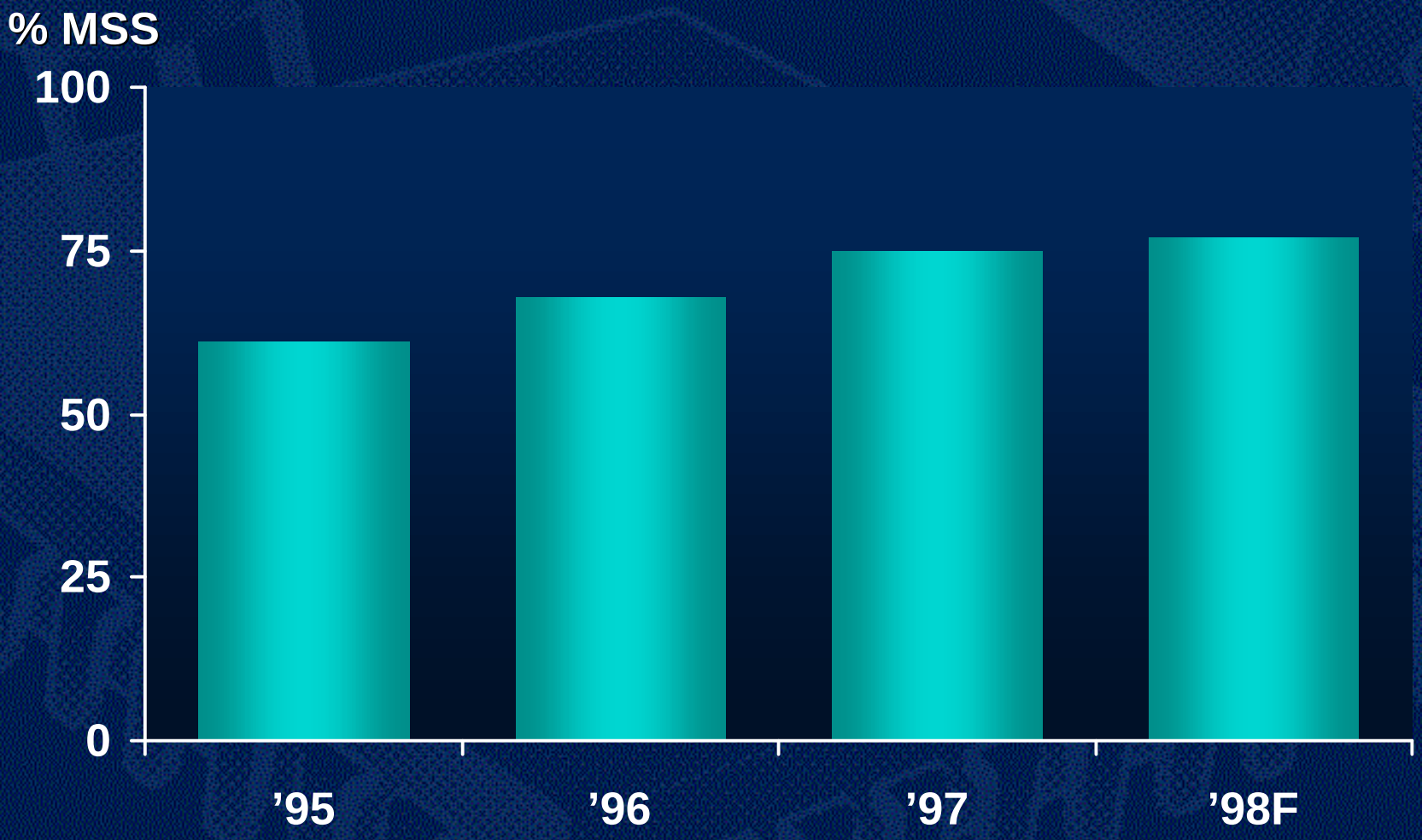
Initiatives

Server	SAN VI Clustering, SHV, WfM, Intelligent I/O (I_2O), IPMI, Server System Infrastructure (SSI), Server Design Guide
Workstation	AGP4X, AGP Pro, Dual Processing, Direct RDRAM, PC9x
Performance PC	DVD, 1394, WfM2.0, Direct RDRAM, Instantly Available (IAPC), OnNow, AC97 2.0, AGP, PC9x, WBEM, WHIIG
Basic PC	Micro ATX, SFX Power Supply, IAPC, OnNow, Soft Migration, WfM, AGP, PC9x, WBEM, WHIIG
Mobile PC	Mobile Power Guidelines, AGP, ACPI, OnNow, Soft Migration, WfM2.0, Mobile Data, PC9x, WBEM, WHIIG

Agenda



Intel Architecture Share Of The Server Market Segment



Source: IDC, Intel

Advancing The Server Platform - ’98

Processor	Pentium® Pro	Pentium II “SVW”
L2 Cache	½M/1M	1/2M/1M/2M
MHZ	200	400/450
Package	PGA	Slot 2 Technology

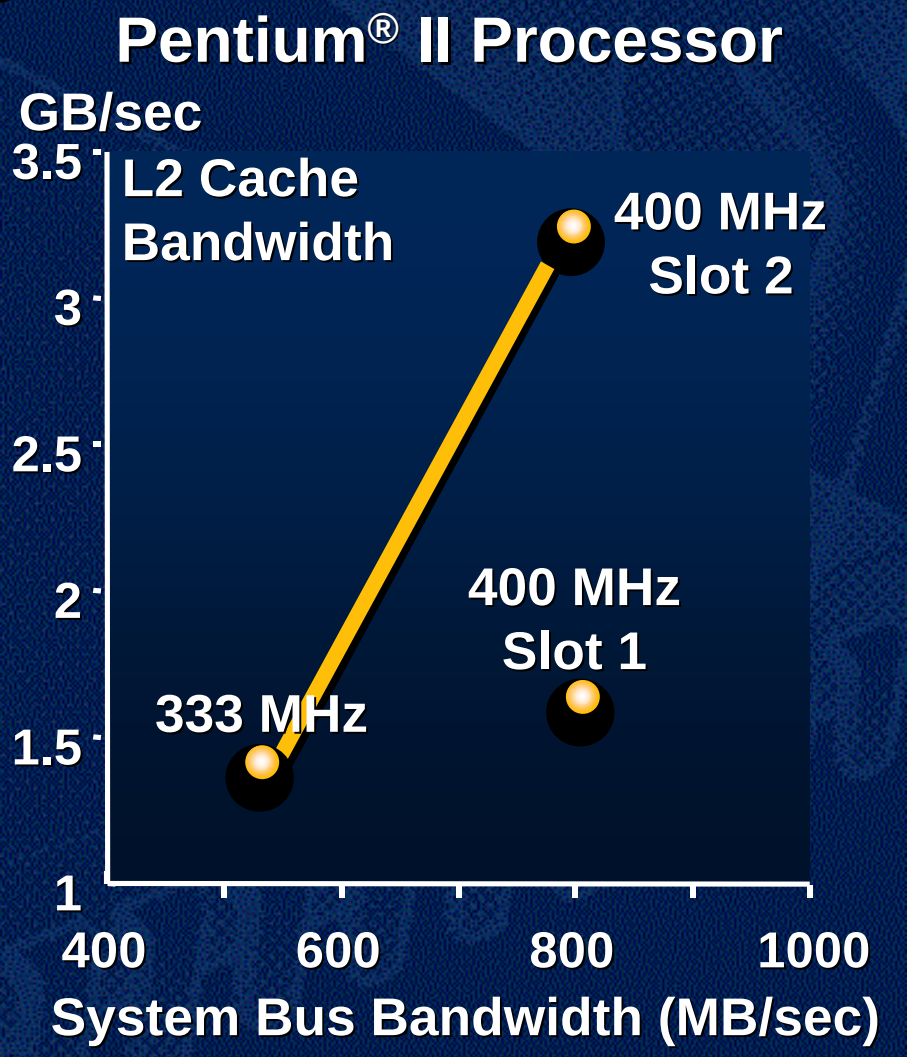
Chipset	450GX	450 “SWS”
Bus Speed	66 MHz	100 MHz

Initiatives	SAN VI Clustering, SHV, WfM, I_2O, IPMI, SSI, Server Design Guide

Slot 2 Overview

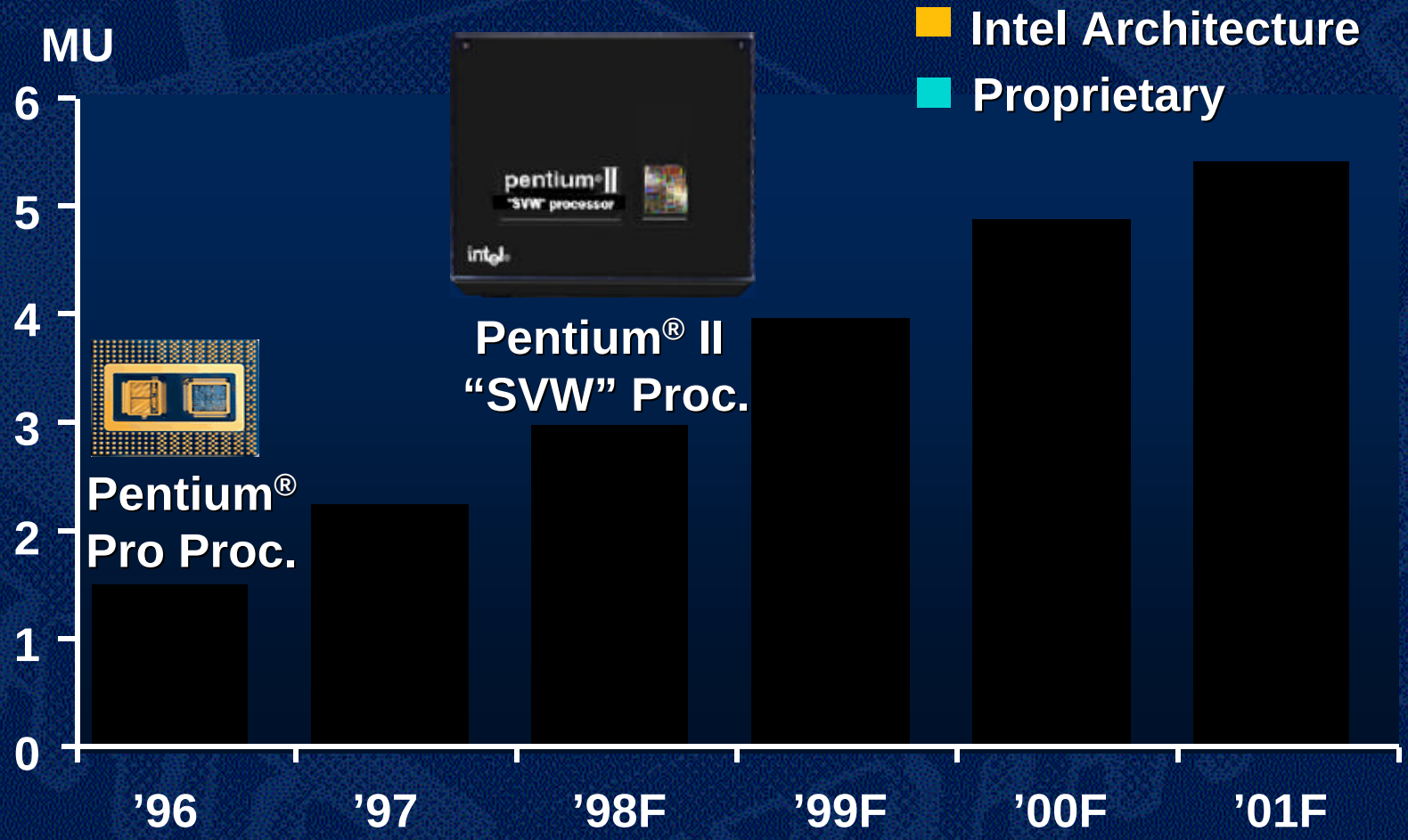
Increased cache bandwidth and memory addressability

- Large full speed L2 cache bus
- Supports 100 MHz system bus
- Enables one- to *N*-way multiprocessing



Agenda

Workstation Segment Momentum



Source: IDC, 12/97

Advancing The Workstation Platform - ’98

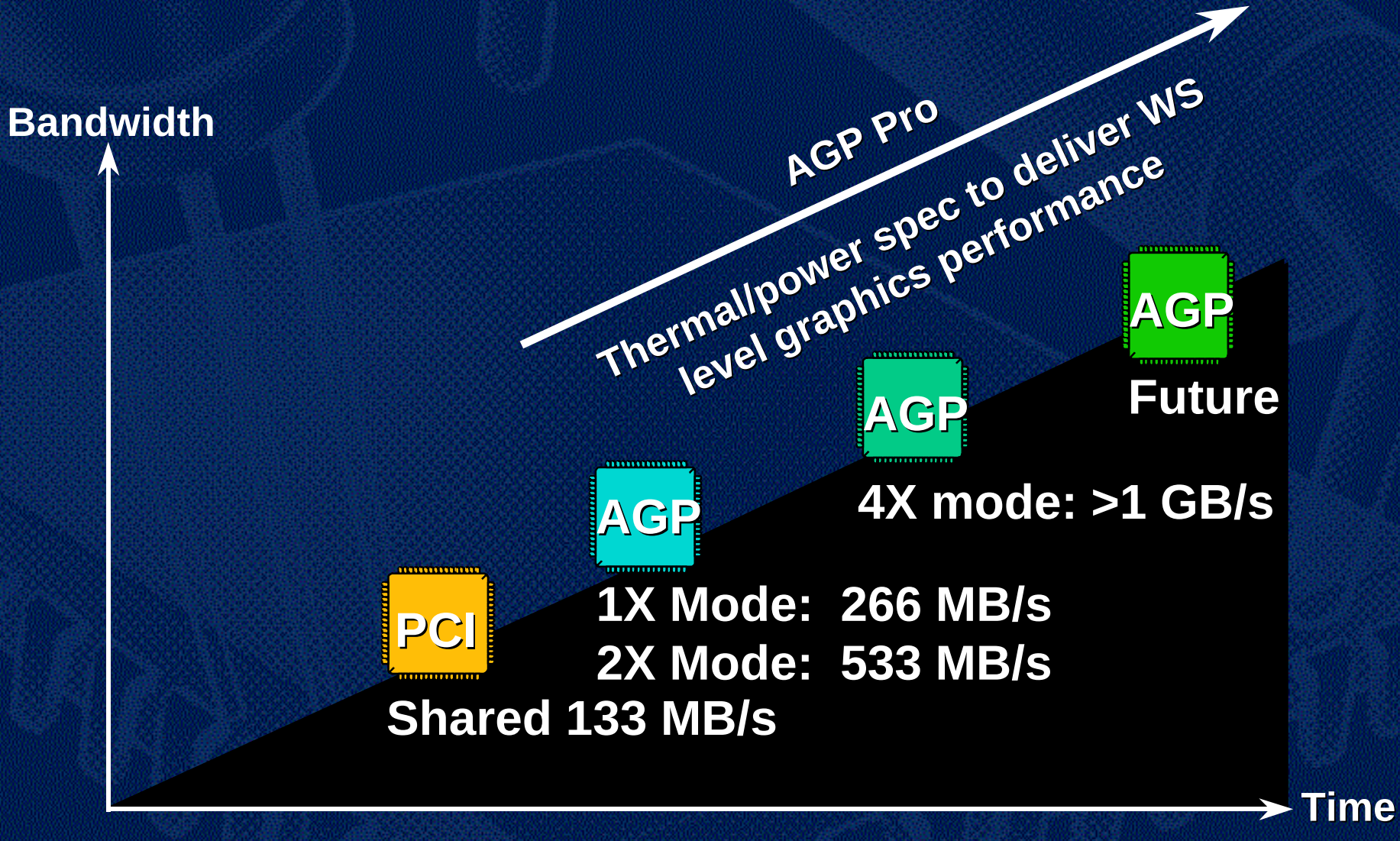
Processor	Pentium® II	Pentium II “SVW”
L2 Cache	½M	½M
MHZ	400	450
Package	SECC	Slot 2 Technology

Chipset	440BX	440“WS”
Bus Speed	100 MHz	100 MHz

Initiatives	AGP4X, AGP Pro, Dual Processing, Direct RDRAM, PC9x

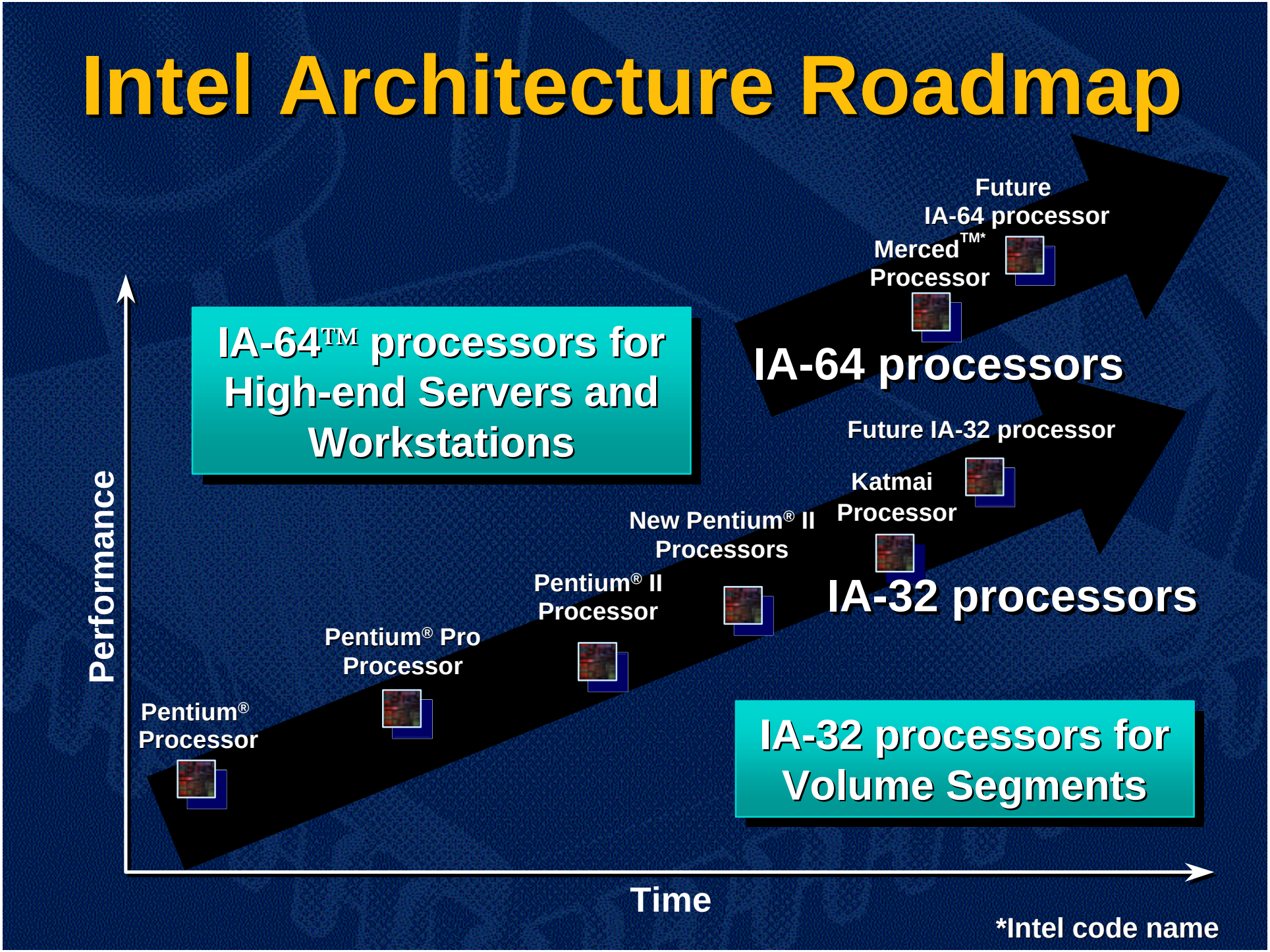
Demo

AGP Initiative

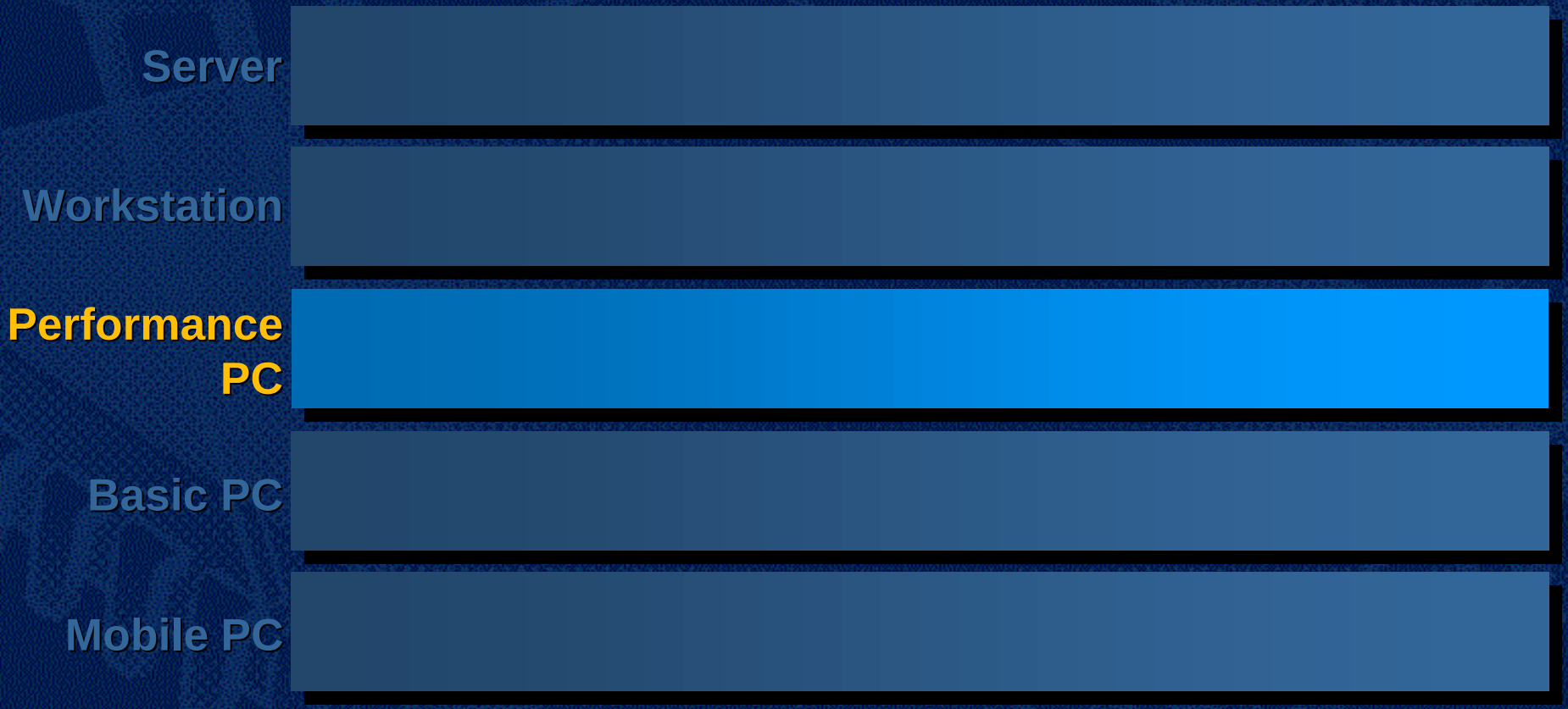


Advancing Graphics Performance

Intel Architecture Roadmap



Agenda



Advancing The Performance PC Platform - ’98

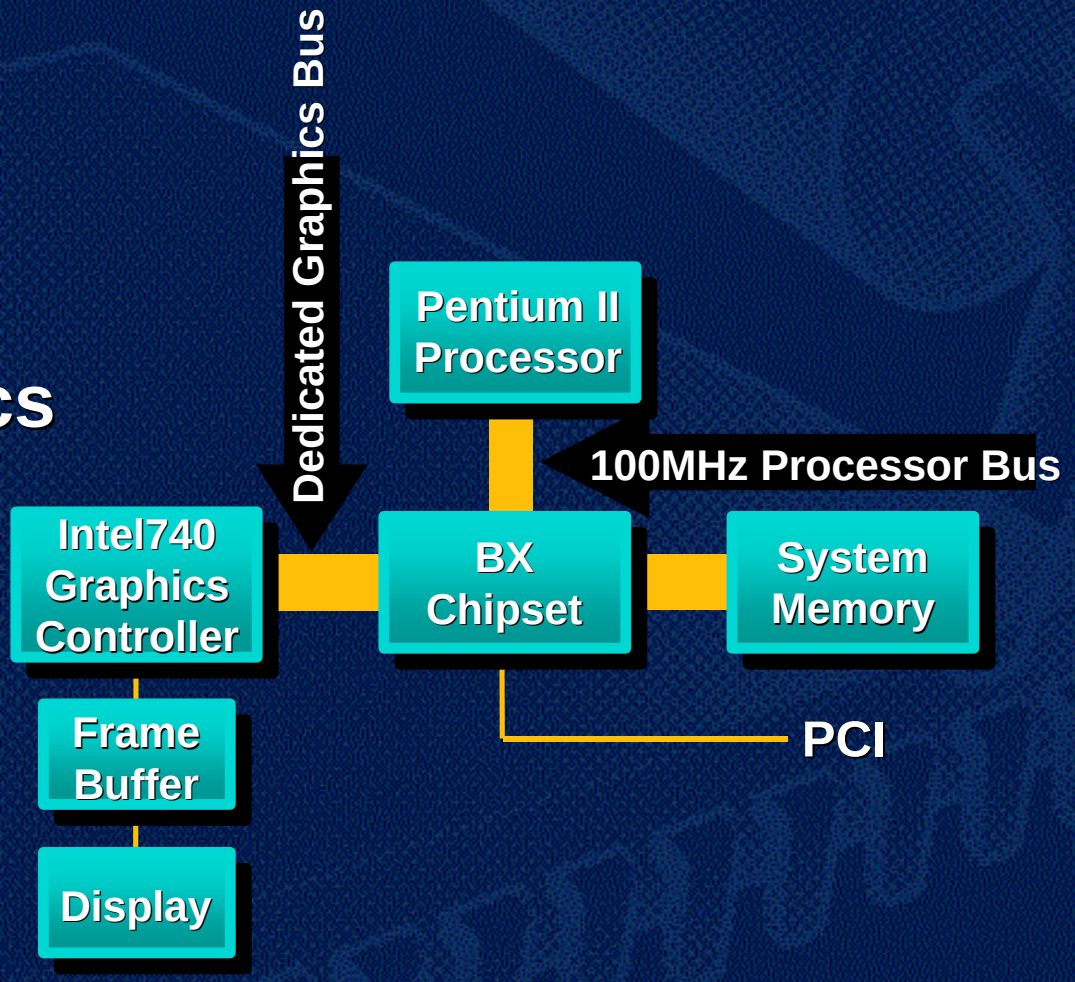
Processor	Pentium® II	Pentium II
L2 Cache	512K PBSRAM	512K PBSRAM
MHZ	233, 266, 300, 333	350, 400, 450
Package	SECC	SECC

Chipset	440LX	440BX
Bus Speed	66 MHz	100 MHz

Initiatives	DVD, 1394, WfM 2.0, Direct RDRAM, IAPC, OnNow, AC97 2.0, PC9x, AGP → AGP4x, WBEM, WHIIG

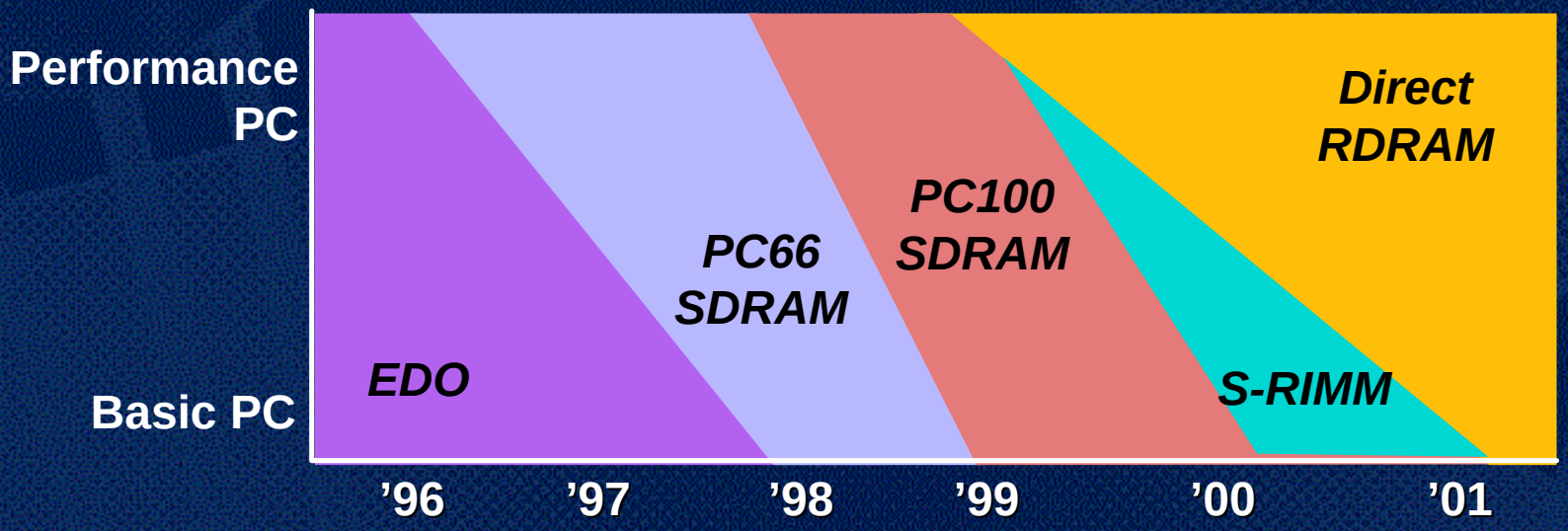
Performance PC ’98

- Pentium® II processor with 100 MHz bus
- AGP
- Intel740 graphics controller

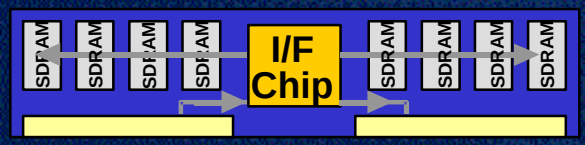


Demo

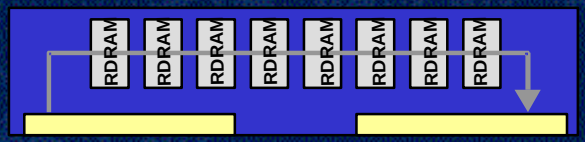
Memory Technology



- S-RIMM to help establish socket to facilitate faster transition to Direct RDRAM
- Direct-RDRAM is end goal



S-RIMM: RIMM with SDRAM

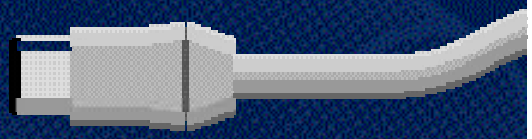


RIMM with Direct RDRAM

Instantly Available PC (IAPC) Initiative

- Enhances the power management capabilities of the ACPI spec
- Meet or exceed Global Energy Regulations
- Maintains communication capabilities
  - Enables an “Off” yet, communicating PC
- Ease-of-use enhancement
  - Resume from <5W in <5 seconds
- Instantly Available is fully consistent with the OnNow architecture

1394 High-Speed Serial Bus Initiative

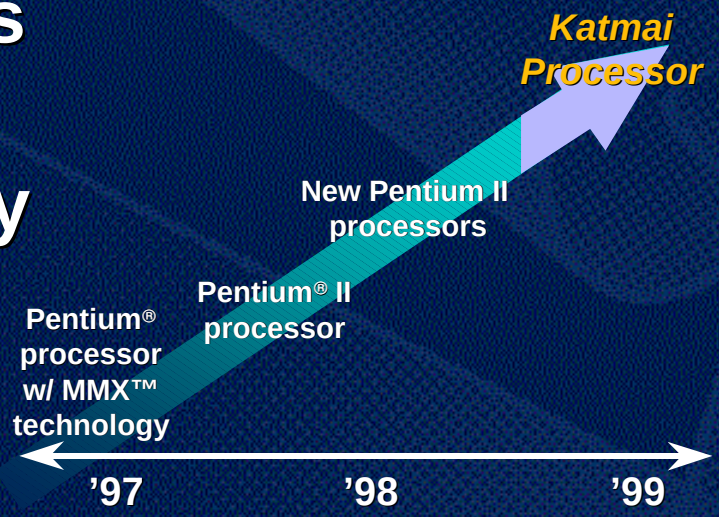


- Provides a “Convergence Pipe” between the PC and new digital Consumer Electronics devices
- Advances the PC platform
  - Hot plug and play, ease of use
  - Multimedia data types though high-speed isochronous support
  - Advanced host-based processing for lower-cost peripherals
  - Enables legacy removal

Performance PC ’99

- Katmai New Instructions in ’99
- Comprehensive industry enabling program

“I got everything I hoped for and more. Big win”
— John Carmack, Id Software



“Microsoft is excited about working with Intel on supporting Katmai New Instructions and is committed to taking full advantage of the technology in future Windows and Windows NT platforms.”
— Paul Maritz Group Vice President, Windows Platforms, Microsoft Corp.

Demo

Agenda

Advancing The Basic PC Platform - ’98

Processor	Pentium® w/ MMX™	Celeron™
MHZ	200, 233	266
Package	PGA	SEPP

Chipset	430TX	440 “BPC”
Bus Speed	66 MHz	66 MHz

Initiatives	Micro ATX, SFX, OnNow, Soft Migration, IAPC, WfM, AGP, PC9x, WBEM, WHIIG

Basic PC Platform Cost Reduction

◆ Reduce CPU cost	◆ Celeron™ processor ◆ Celeron processor with integrated L2
◆ Reduce chip set cost	◆ 440 “BPC”
◆ Reduce MB cost	◆ Micro ATX
◆ Form Factor Cost	◆ MicroATX form factor (’99) ◆ 90W SFX power supply
◆ Migrate functions to software	◆ Audio, DVD, Modem… (’99)

Reduce Cost in All Major Building Blocks

Agenda

Advancing The Mobile PC Platform - ’98

Processor	Pentium® w/ MMX™	Mobile Pentium II
MHZ	233, 266	233, 266, 300
Package	Module, TCP	Mini Cart., Module

Chipset	430TX	440BX
Bus Speed	66 MHz	66 MHz

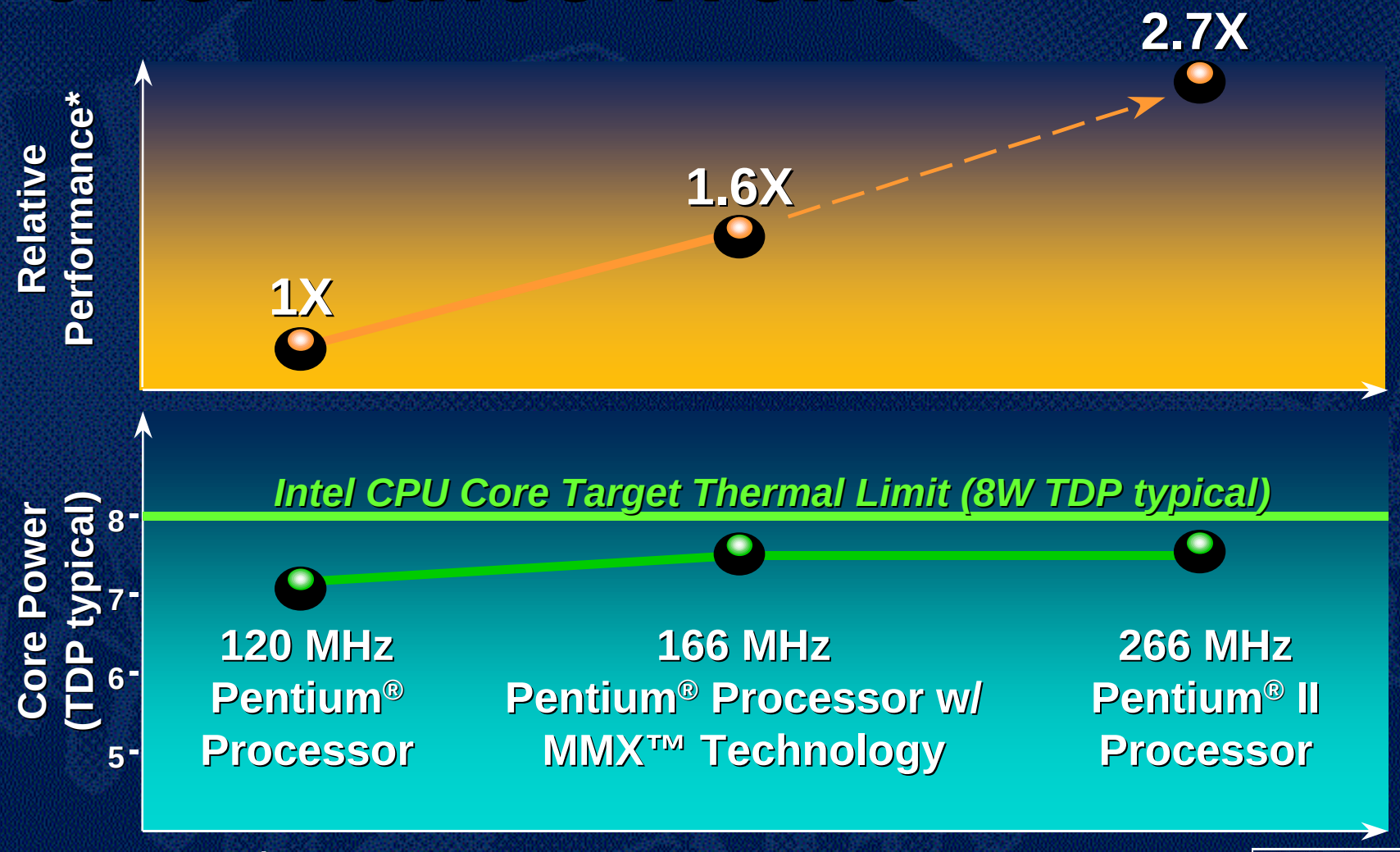
Initiatives	Mobile Power, ACPI, OnNow, Soft Migration, WfM 2.0, Mobile Data, PC9x, WBEM, WHIIG, AGP

Mobilizing The Pentium® II Processor

	.8µ	.6µ	.35µ	.25µ
Process Technology				
CPU Core Voltage	5V	3.3V	2.5V	1.7V

Mobile Pentium® II Processor

Mobile CPU Power And Performance Trend

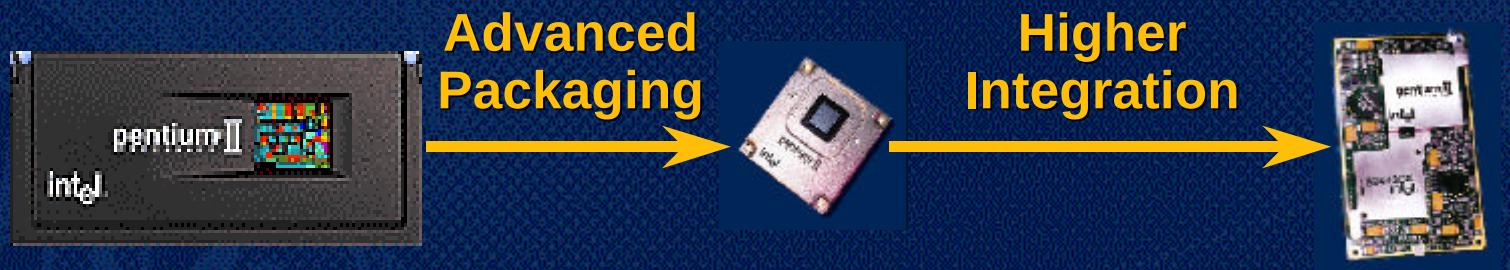


* Based on Norton Multimedia Benchmark V3.0

Demo

Smaller And Lighter Enabled By…

- Low power system design
- Advanced packaging
- Integration (fewer components)
- Soft technologies (fewer components)

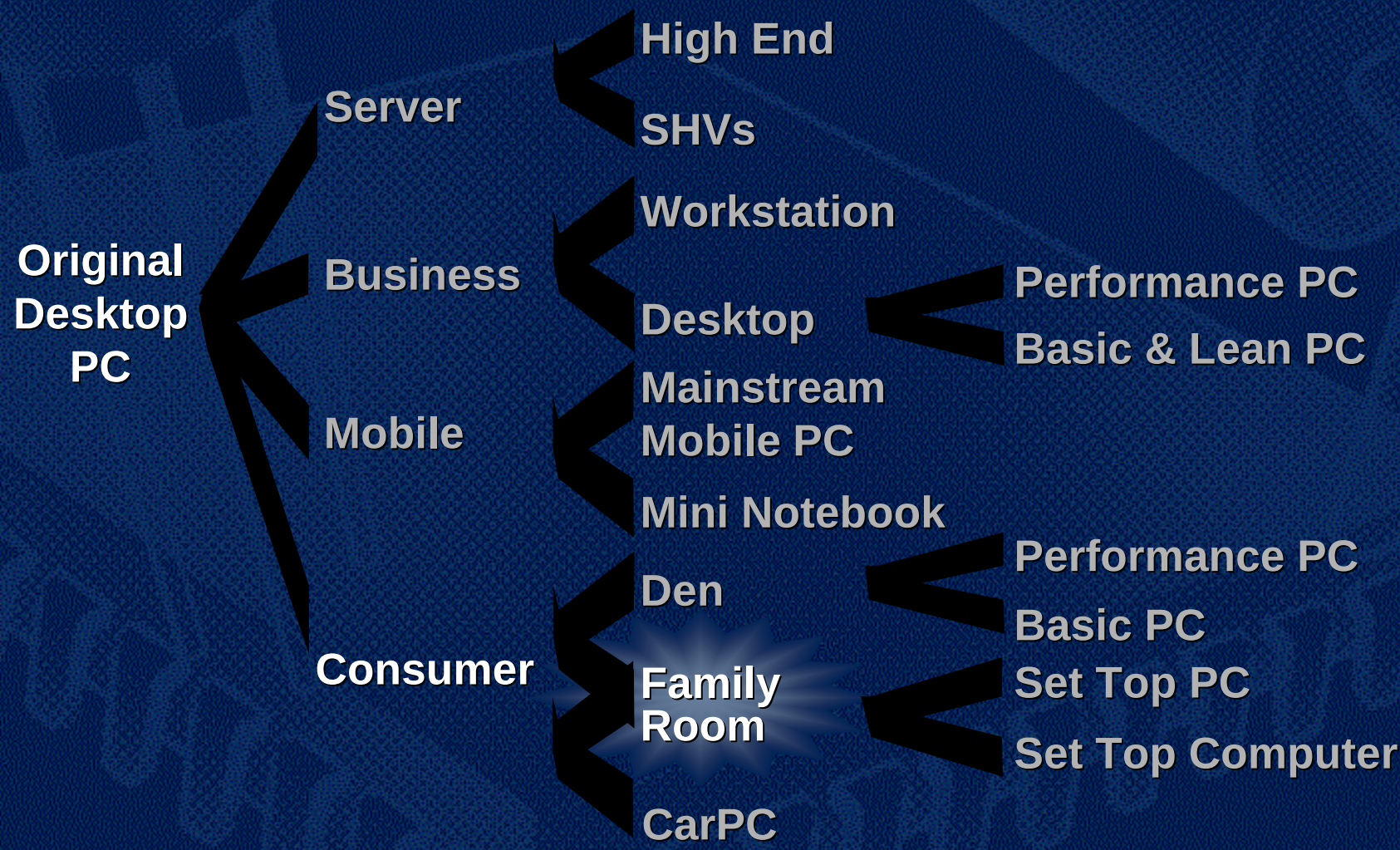


SECC

Mobile Mini-Cartridge
~85% smaller than SECC

Intel Mobile Module
~55% smaller than SECC

PC Market Segments



Family Room Roadmap

Set Top PC
(<$999*)

Enhanced STC plus...
PC as a Channel
PC Integrated EPG
CE Command/Control
DVD/CD ROM PC Apps

Enhanced Set Top Computer

Basic STC plus...
Richer EPG
DVD movie playback
Audio CD playback

Basic Set Top Computer
(>$399*)

Broadband Digital Video
Plain EPG
POTS or BB internet
VBI Content
ROM-based apps

Range of Platform Capabilities

Demo

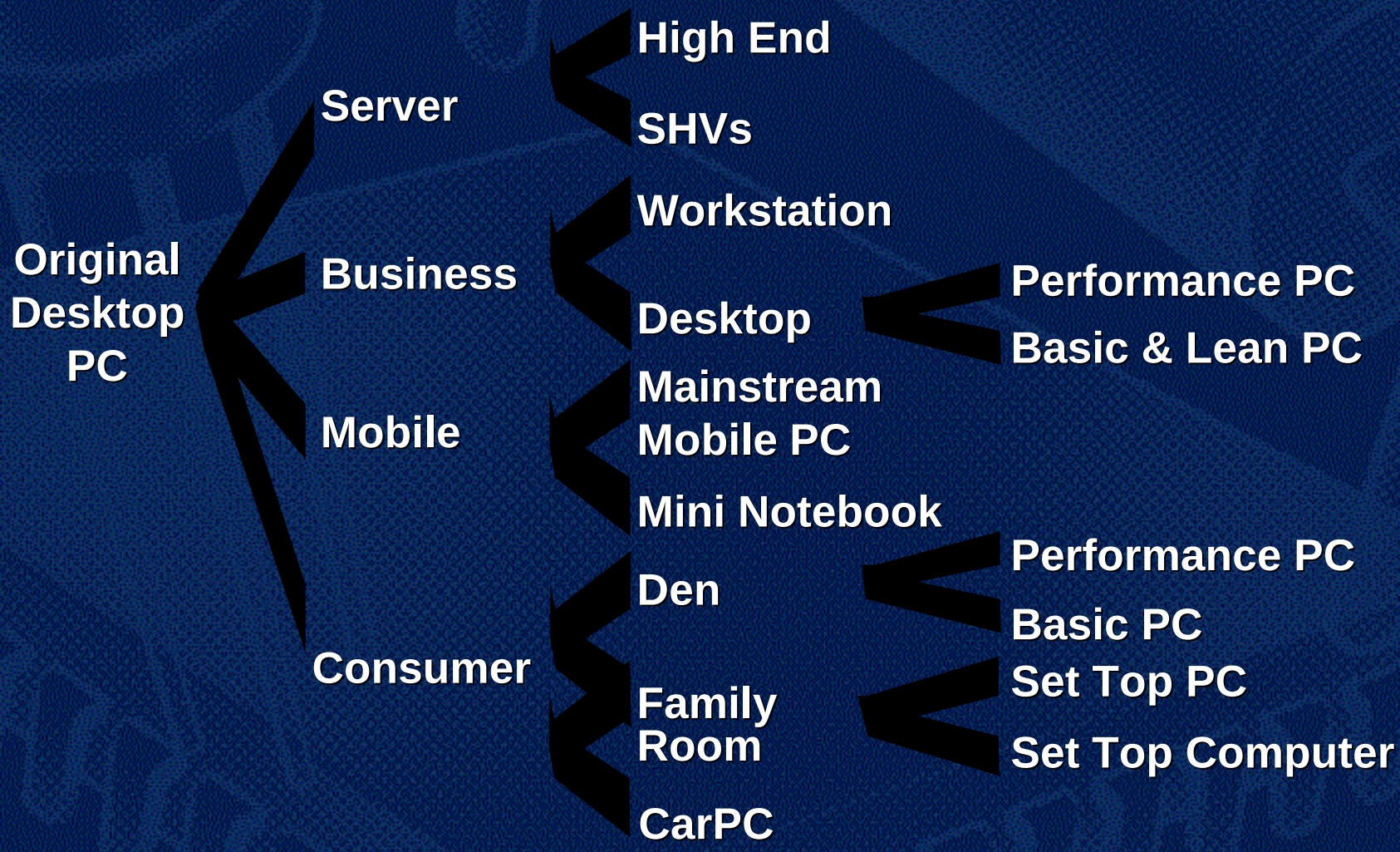
*Expected Retail Price Range

Digital Broadcast

- IA platforms - universal digital broadcast receiver
  - Receive all transports
  - Decode all formats
- Promote creation of digital broadband content
  - Open Digital Broadcast Initiative
    - Eliminate need to customize for transport or format
    - Author content once, display on all digital receivers
    - Accelerate development of video + data broadcast

Demo

Summary



Trend is Market Segmentation

http://developer.intel.com

- Let's work together to advance the platform for these market segments

Intel Developer Forum	Technical Conference	Twice a year in Feb. & Sept.
PLUG FESTS	Plug Fests	2-4 per quarter
platform solutions on-line news for the hardware developer	Newsletter http://Developer.intel.com/Solutions	Monthly
Design Guides, White Papers, PC 98	On-line Design Archive	Ongoing updates